



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

05514 7590 03/29/2004

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

SANTIAGO, MARICELI

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 03/29/2004

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/722,454 | 11/28/2000 | Yoichi Ando | 35.C14179 | 4782 |

TITLE OF INVENTION: METHOD FOR MANUFACTURING ELECTRON BEAM DEVICE, METHOD FOR MANUFACTURING IMAGE FORMING APPARATUS, ELECTRON BEAM DEVICE AND IMAGE FORMING APPARATUS MANUFACTURED THOSE MANUFACTURING METHODS, METHOD AND APPARATUS FOR MANUFACTURING ELECTRON SOURCE, AND APPARATUS FOR MAN

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | NO | \$1330 | \$0 | \$1330 | 06/29/2004 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

**Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

05514 7590 03/29/2004

**FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/722,454 | 11/28/2000 | Yoichi Ando | 35.C14179 | 4782 |

TITLE OF INVENTION: METHOD FOR MANUFACTURING ELECTRON BEAM DEVICE, METHOD FOR MANUFACTURING IMAGE FORMING APPARATUS, ELECTRON BEAM DEVICE AND IMAGE FORMING APPARATUS MANUFACTURING THOSE MANUFACTURING METHODS, METHOD AND APPARATUS FOR MANUFACTURING ELECTRON SOURCE, AND APPARATUS FOR MAN

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | NO | \$1330 | \$0 | \$1330 | 06/29/2004 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|--------------------|----------|----------------|
| SANTIAGO, MARICELI | 2879 | 445-006000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
☐ Publication Fee
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

| | |
|---|--------|
| (Authorized Signature) | (Date) |
| <p>NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.</p> <p>This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.</p> <p>Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.</p> | |

TRANSMIT THIS FORM WITH FEE(S)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/722,454 | 11/28/2000 | Yoichi Ando | 35.C14179 | 4782 |
| 05514 | 7590 | 03/29/2004 | EXAMINER | |
| FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | SANTIAGO, MARICELI | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2879 | |
| DATE MAILED: 03/29/2004 | | | | |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 343 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 343 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

Notice of Allowability

Application No.

09/722,454

Examiner

Mariceli Santiago

Applicant(s)

ANDO ET AL.

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed February 23, 2004.
2. ☒ The allowed claim(s) is/are 2-9, 11-18 and 102-122.
3. ☒ The drawings filed on 13 February 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Frank A. Delucia on March 12, 2004.

The application has been amended as follows:

In the claims:

Claim 14, line 3, replace "an electrode" with --the electrode--.

Claims 16, 17, 102 and 103, replace claims 16, 17, 102 and 103 in their entirety with the following amended version of the claims:

16. (Currently amended) A method of manufacturing an electron beam device in which electron emission portions that emit electrons and wirings that electrically connect the electron emission portions are disposed on a substrate, the method comprising:

a wiring forming step of forming at least one wiring on the substrate; and

an electron emission portion forming process of forming the electron emission portions on the substrate;

wherein an electric field applying process of applying a given electric field to the substrate on which the at least one wiring is formed is conducted using an electrode opposing a surface of the substrate on which the at least one wiring is formed after said wiring forming step is completed and before said electron emission portion forming process is completed,

wherein said electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and said electric field applying process is conducted before said electrode forming step is conducted,

wherein the pair of electrodes comprise an emitter and a gate of the electric field emission type electron emission element,

wherein said electric field applying process is conducted before the emitter is formed,

wherein said electric field applying process is conducted before the gate is formed,

wherein the plurality of electron emission portions are connected onto one main surface of the substrate in the form of a ladder or a matrix by the wirings, and

wherein a distance between the electrode and the wirings is changed during the electric field applying process.

17. (Currently amended) A method of manufacturing an electron beam device in which electron emission portions that emit electrons and wirings that electrically connect the electron emission portions are disposed on a substrate, the method comprising:

a wiring forming step of forming at least one wiring on the substrate; and

an electron emission portion forming process of forming the electron emission portions on the substrate;

wherein an electric field applying process of applying a given electric field to the substrate on which the at least one wiring is formed is conducted using an electrode opposing a surface of the substrate on which the at least one wiring is formed after said wiring forming step is completed and before said electron emission portion forming process is completed,

wherein said electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and said electric field applying process is conducted before said electrode forming step is conducted,

wherein the pair of electrodes comprise an emitter and a gate of the electric field emission type electron emission element,

wherein said electric field applying process is conducted before the emitter is formed,

wherein said electric field applying process is conducted before the gate is formed,

wherein the plurality of electron emission portions are connected onto one main surface of the substrate in the form of a ladder or a matrix by the wirings, and

wherein a current limit resistor is connected between the electrode and a power supply that applies a voltage to the electrode.

102. (Currently amended) A method of manufacturing an electron beam device in which electron emission portions that emit electrons and wirings that electrically connect the electron emission portions are disposed on a substrate, the method comprising:

a wiring forming step of forming at least one wiring on the substrate; and

an electron emission portion forming process of forming the electron emission portions on the substrate;

wherein an electric field applying process of applying a given electric field to the substrate on which the at least one wiring is formed is conducted using an electrode opposing a surface of the substrate on which the at least one wiring is formed after said wiring forming step is completed and before said electron emission portion forming process is completed,

wherein said electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and said electric field applying process is conducted before said electrode forming step is conducted,

wherein the pair of electrodes comprise an emitter and a gate of the electric field emission type electron emission element,

wherein the electric field emission type electron emission element comprises the emitter that emits electrons from an end portion and the gate that produces an electric field between the end portion and the gate,

wherein said electric field applying process is conducted before the emitter is formed,

wherein said electric field applying process is conducted before the gate is formed,

wherein the plurality of electron emission portions are connected onto one main surface of the substrate in the form of a ladder or a matrix by the wirings, and

wherein a distance between the electrode and the wirings is changed during the electric field applying process.

103. (Currently amended) A method of manufacturing an electron beam device in which electron emission portions that emit electrons and wirings that electrically connect the electron emission portions are disposed on a substrate, the method comprising:

a wiring forming step of forming at least one wiring on the substrate; and

an electron emission portion forming process of forming the electron emission portions on the substrate;

wherein an electric field applying process of applying a given electric field to the substrate on which the at least one wiring is formed is conducted using an electrode opposing a

Art Unit: 2879

surface of the substrate on which the at least one wiring is formed after said wiring forming step is completed and before said electron emission portion forming process is completed,

wherein said electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and said electric field applying process is conducted before said electrode forming step is conducted,

wherein the pair of electrodes comprise an emitter and a gate of the electric field emission type electron emission element,

wherein the electric field emission type electron emission element comprises the emitter that emits electrons from an end portion and the gate that produces an electric field between the end portion and the gate,

wherein said electric field applying process is conducted before the emitter is formed,

wherein said electric field applying process is conducted before the gate is formed,

wherein the plurality of electron emission portions are connected onto one main surface of the substrate in the form of a ladder or a matrix by the wirings, and

wherein a current limit resistor is connected between the electrode and a power supply that applies a voltage to the electrode.

Response to Amendment

The Amendment, filed on February 23, 2004, has been entered and acknowledged by the Examiner.

Cancellation of claims 1, 10 and 19-101 has been entered.

Claims 2-9, 11-18 and 102-122 are pending in the instant application.

Allowable Subject Matter

Claims 2-9, 11-18 and 102-122 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claim 2, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 2, and specifically comprising the limitation of an electric field applying process of applying a given electric field to the substrate on which the at least one wiring is formed is conducted using an electrode opposing a surface on the substrate on which the at least one wiring is formed, after the wiring forming step is completed and before the electron emission portion forming process is completed, and wherein the electric field is 1kV/mm or more in its electric field intensity.

Regarding claims 4-6 and 9, claims 4-6 and 9 are allowable for the reasons given in claim 2 because of their dependency status from claim 2.

Regarding claim 3, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 3, and specifically comprising the limitation of the electric field applying process comprises a step of discharging, by application of the electric field, electricity from a portion of the substrate from which electricity is liable to be discharge in various processes after the electric field applying process including the electron emission portion forming process, or when the electron beam device is used, to thereby cause the portion of he substrate into a shape which is difficult to discharge electricity.

Regarding claim 7, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation of the electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with

Art Unit: 2879

respective ones of the electron emission portions, and the electric field applying process is conducted before the electrode forming step is conducted, and wherein the electric field applying process is conducted before the thin film forming step is conducted.

Regarding claim 8, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 8, and specifically comprising the limitation of the electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and the electric field applying process is conducted before the electrode forming step is conducted, and wherein the electric field applying process is conducted after the thin film forming step is completed and before the gap is produced in the electrically conductive thin film.

Regarding claim 11, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 11, and specifically comprising the limitation of the electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and the electric field applying process is conducted before the electrode forming step is conducted, and the pair of electrodes comprise an emitter and a gate of an electric field emission type electron emitter element, the electric field applying process is conducted before the emitter is formed.

Regarding claims 12-15 and 105, claims 12-15 and 105 are allowable for the reasons given in claim 11 because of their dependency status from claim 11.

Regarding claims 16 and 102, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 16 and 102, and specifically comprising the limitation of the electron emission portion forming step includes an electrode

Art Unit: 2879

forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and the electric field applying process is conducted before the electrode forming step is conducted, and a distance between the electrode and the wirings is changed during the electric field applying process.

Regarding claims 17 and 103, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 17 and 103, and specifically comprising the limitation of the electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and the electric field applying process is conducted before the electrode forming step is conducted, and a current limit resistor is connected between the electrode and the power supply that applies a voltage to the electrode.

Regarding claims 18 and 104, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 18 and 104, and specifically comprising the limitation of the electron emission portion forming step includes an electrode forming step of forming a pair of electrodes to which different potentials are given from the wirings in correspondence with respective ones of the electron emission portions, and the electric field applying process is conducted in a vacuum atmosphere.

Regarding claims 106 and 108, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 106 and 108, and specifically comprising the limitation of a voltage applying step wherein, after completing the wiring forming step, before the electron emitting portion forming step and the sealing step, an electrode is disposed in opposition to the rear plate on which the wiring is disposed, and a voltage is applied

Art Unit: 2879

between the electrode and the rear plate, wherein the voltage applying step is conducted to cause an electrical discharging between the electrode and the rear plate.

Regarding claims 113 and 116-122, claims 113 and 116-122 are allowable for the reasons given in claim 106 because of their dependency status from claim 106.

Regarding claims 107 and 109, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 107 and 109, and specifically comprising the limitation of a voltage applying step wherein, after completing the wiring forming step and the electroconductive film forming step, before the electron emitting portion forming step and the sealing step, an electrode is disposed in opposition to the rear plate on which the wiring is disposed, and a voltage is applied between the electrode and the rear plate, wherein the voltage applying step is conducted to cause an electrical discharging between the electrode and the rear plate.

Regarding claims 110-112, 114 and 115, claims 110-112, 114 and 115 are allowable for the reasons given in claim 107 because of their dependency status from claim 107.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

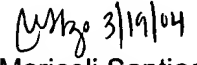
Contact Information

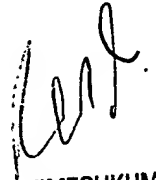
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

Art Unit: 2879

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Mariceli Santiago
Patent Examiner
Art Unit 2879


NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800